

LETTER TO PARENTS

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Cut here and paste onto school letterhead before making copies.

SCIENCE NEWS

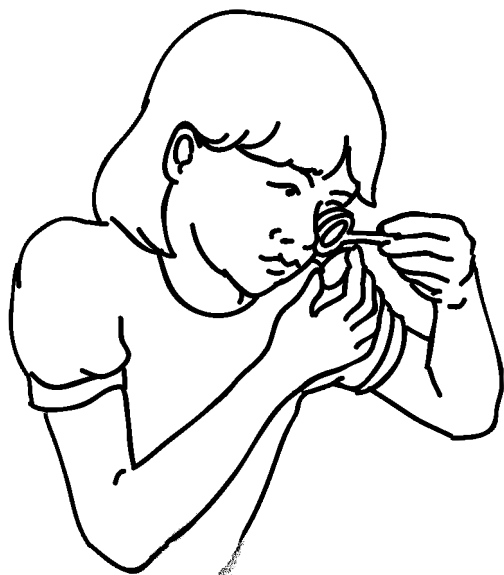
Dear Parents,

Our class is beginning an earth science unit. We will be studying rock, one of the most important earth materials. Our investigations will center on the properties and uses of rock in many of its particle sizes—pebbles, gravel, sand, silt, and clay. The children will be working extensively with materials, observing, comparing, and communicating what they learn through their firsthand experiences with earth materials.

Your child may ask for help finding a rock or two to contribute to our class rock collection. A rock from your yard or neighborhood is fine. As our study continues, your child will be learning more and more about rocks. Try to find opportunities to talk with your child about sand, gravel, and soil, and ways people use these materials in construction (asphalt, concrete, bricks, mortar, etc.) and landscaping. This is an engaging theme for a family outing.

We're looking forward to lots of discoveries and new experiences as we explore the earth materials that can be found all around us. If you have any questions or comments, or have expertise you would like to share with the class, please write me a note.

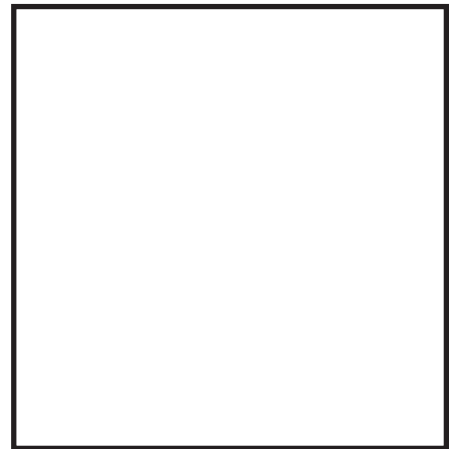
Sincerely,



Name _____ Date _____

ROCK RECORD

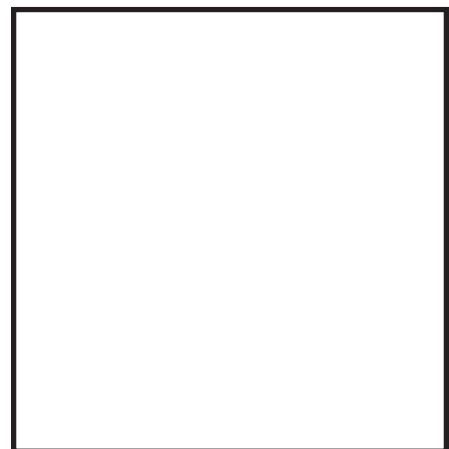
This rock is



Name _____ Date _____

ROCK RECORD

This rock is



Name _____ Date _____

ROCK WORDS

.....

crystal

rough

rock

smooth

stone

dull

sharp

shiny

light

soft

dark

flat

small

chalky

large

diamond

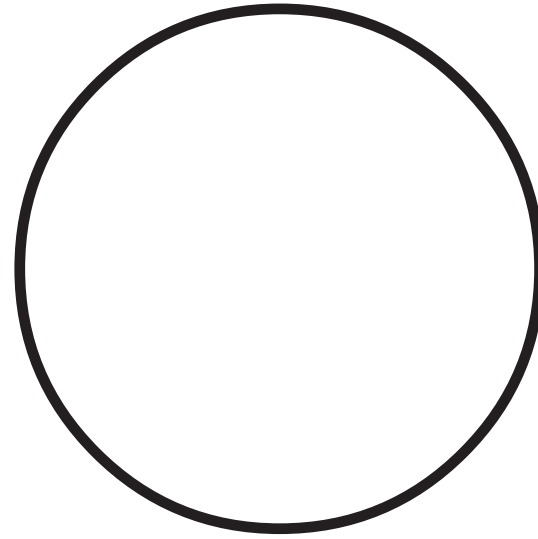
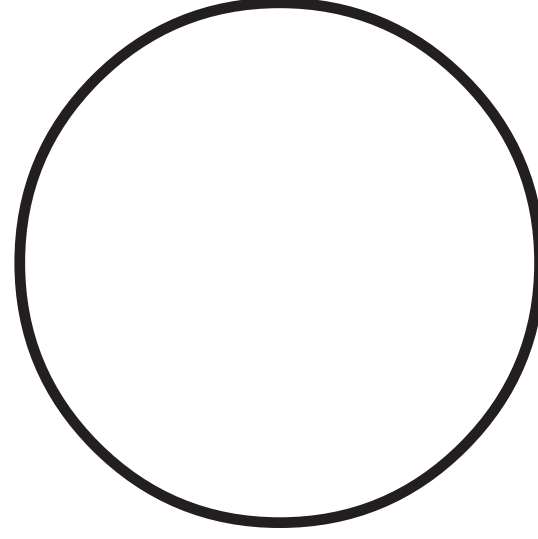
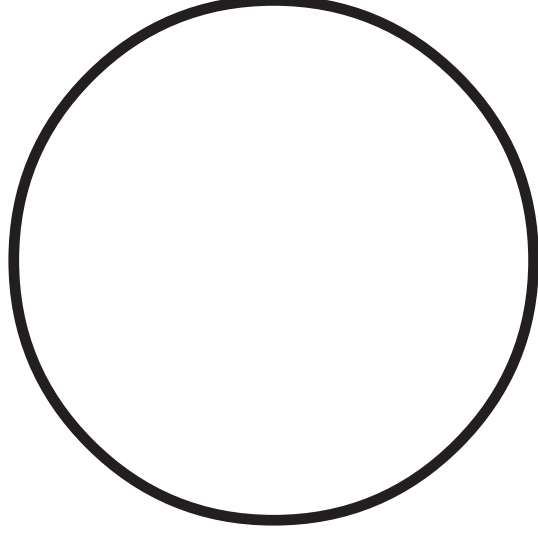
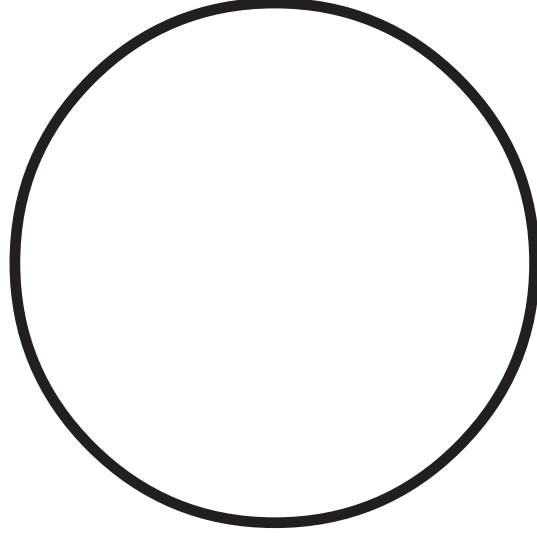
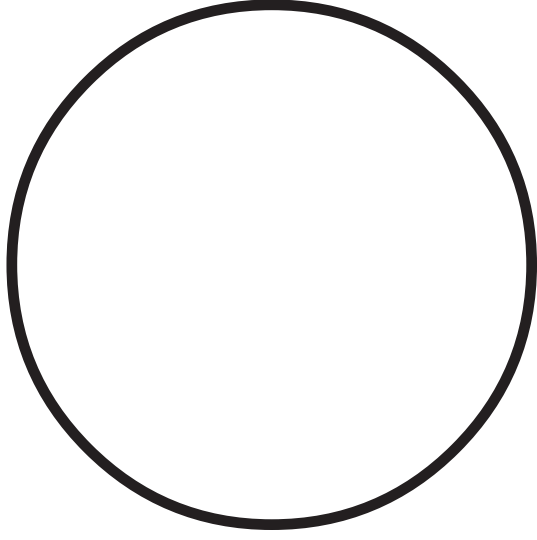
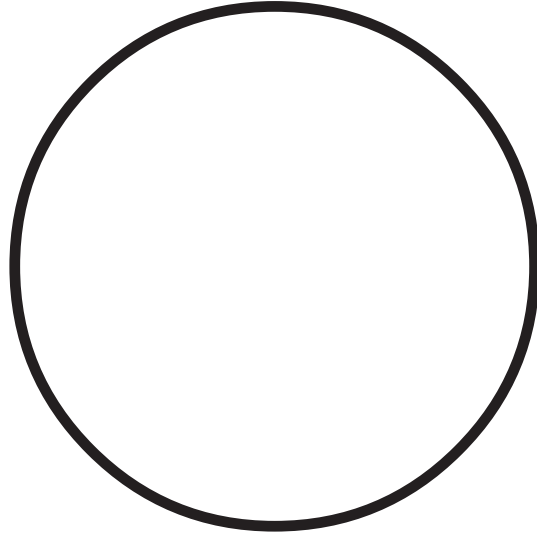
pointed

mud

hard

round

SORTING MAT—SIDE ONE



SORTING MAT—SIDE TWO

ROCK-SIZE LABELS

.....

sand

sand

small
gravel

small
gravel

large
gravel

large
gravel

small
pebbles

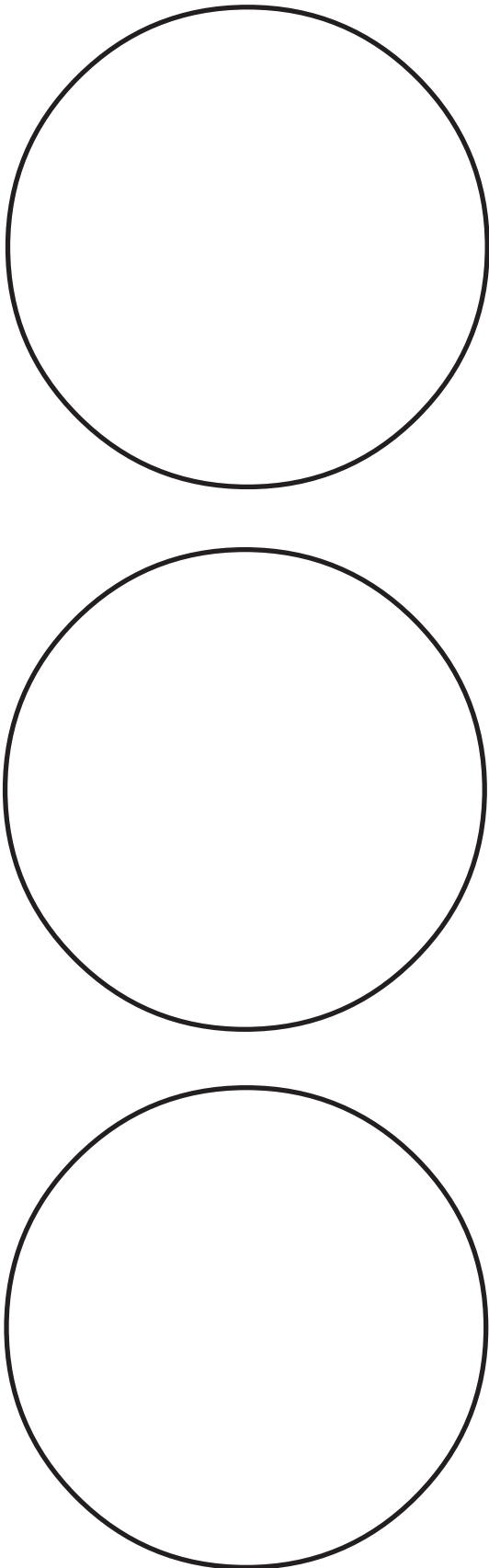
small
pebbles

large
pebbles

large
pebbles

Name _____ Date _____

SAND, GRAVEL, AND PEBBLES



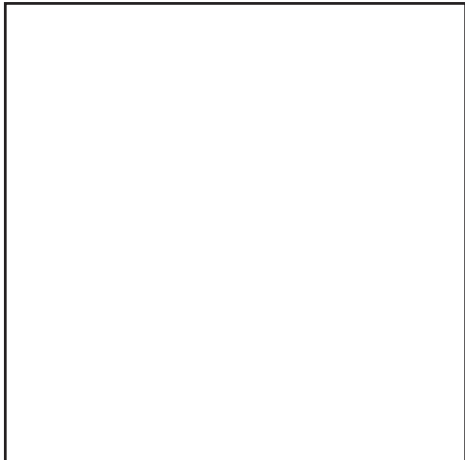
sand



gravel



pebble



Name _____ Date _____

SAND AND CLAY DRAWINGS.....

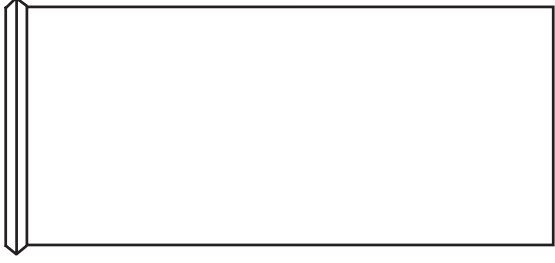
Draw what you see in the vial.



This vial has water and

_____.

Draw what you see in the vial.

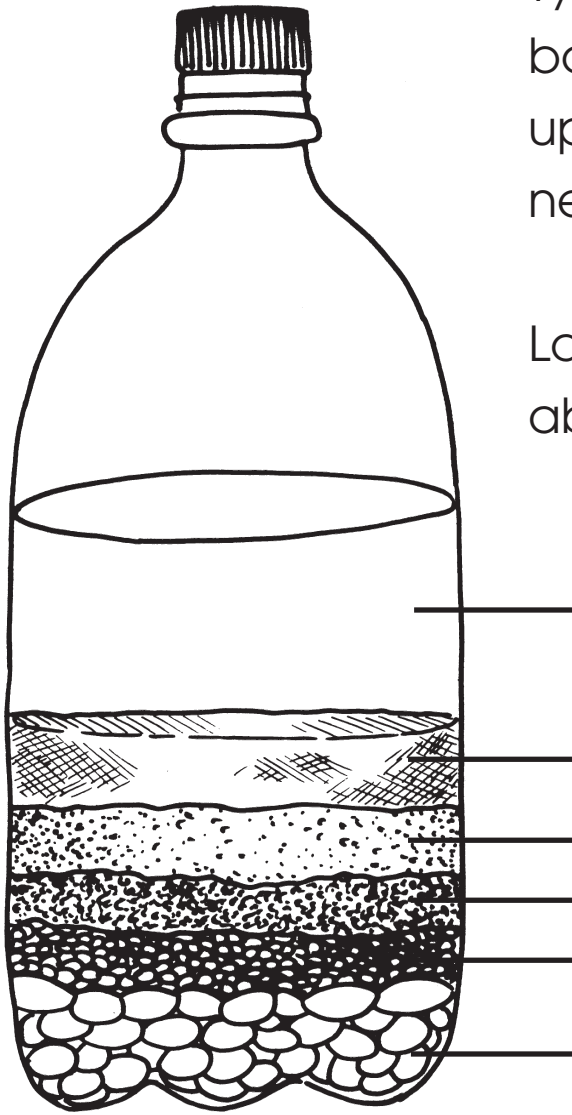


This vial has water and

_____.

Name _____ Date _____

BOTTLE DRAWING



Tyler put some river rocks in a bottle with water and shook it up. This is what it looked like the next day.

Label the layers and write about the picture.

water

SANDPAPER TEXTURE WORDS.....

SANDPAPER TEXTURE WORDS.....

fine

fine

medium

medium

coarse

coarse

CENTER INSTRUCTION CARD—MAKING BRICKS.....

Materials

- Bucket of clay soil
- Basins
- Water and cups
- Dry straw or grass
- Aluminum pans
- Basins of water (cleanup)
- Paper towels
- Scratch paper and pencils

Guide the investigation

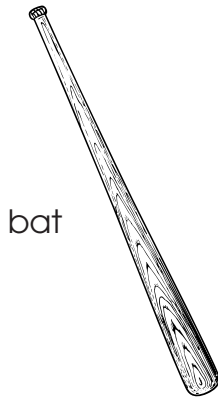
- 1. Introduce the Brick Making.** Call students around the bucket of clay. Tell them that people use earth materials in many ways. One use of clay soil is to make bricks. (Show them the manufactured brick if you have one.) Tell students that you know how they can make their own bricks.
- 2. Describe the Brick-Making Procedure.** Have students roll up their sleeves and follow this procedure.
 - a. Each student measures two cups of clay soil into a basin.
 - b. Add water while students mix with their hands. They should break up the soil lumps and remove rocks. Proper brick mud should be sticky and too thick to pour.
 - c. Each student adds one small handful of grass or straw, working it in thoroughly.
- 3. Mold the Bricks.** When the mud is ready, distribute aluminum pans to students and direct them to mold their bricks.
 - a. Have students use their hands to put mud into the loaf pans. The pans should be filled about two-thirds full.
 - b. Students should press the mud uniformly into the pan and pat the surface flat and smooth.
- 4. Dry the Bricks.** Tell students that the bricks have to “bake” several days in a warm, dry location. Have them carefully move the bricks to the drying location. They should place their pans on a half sheet of paper on which they have written their names.
- 5. Clean up.** Students should wash their hands in the basin of water. The last group should dispose of the leftover clay soil in a garden area and rinse the bucket and basin.

Name _____ Date _____

USES OF EARTH MATERIALS

Circle the things that are made with earth materials.

Write the kind of earth material that each thing is made from.



bat



brick wall



fireplace



hat

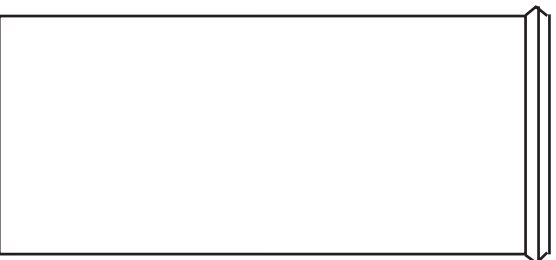


road

Name _____ Date _____

SOIL DRAWINGS

Draw what you see in the vial.



We made this soil in class.

Draw what you see in the vial.



We found this soil near the

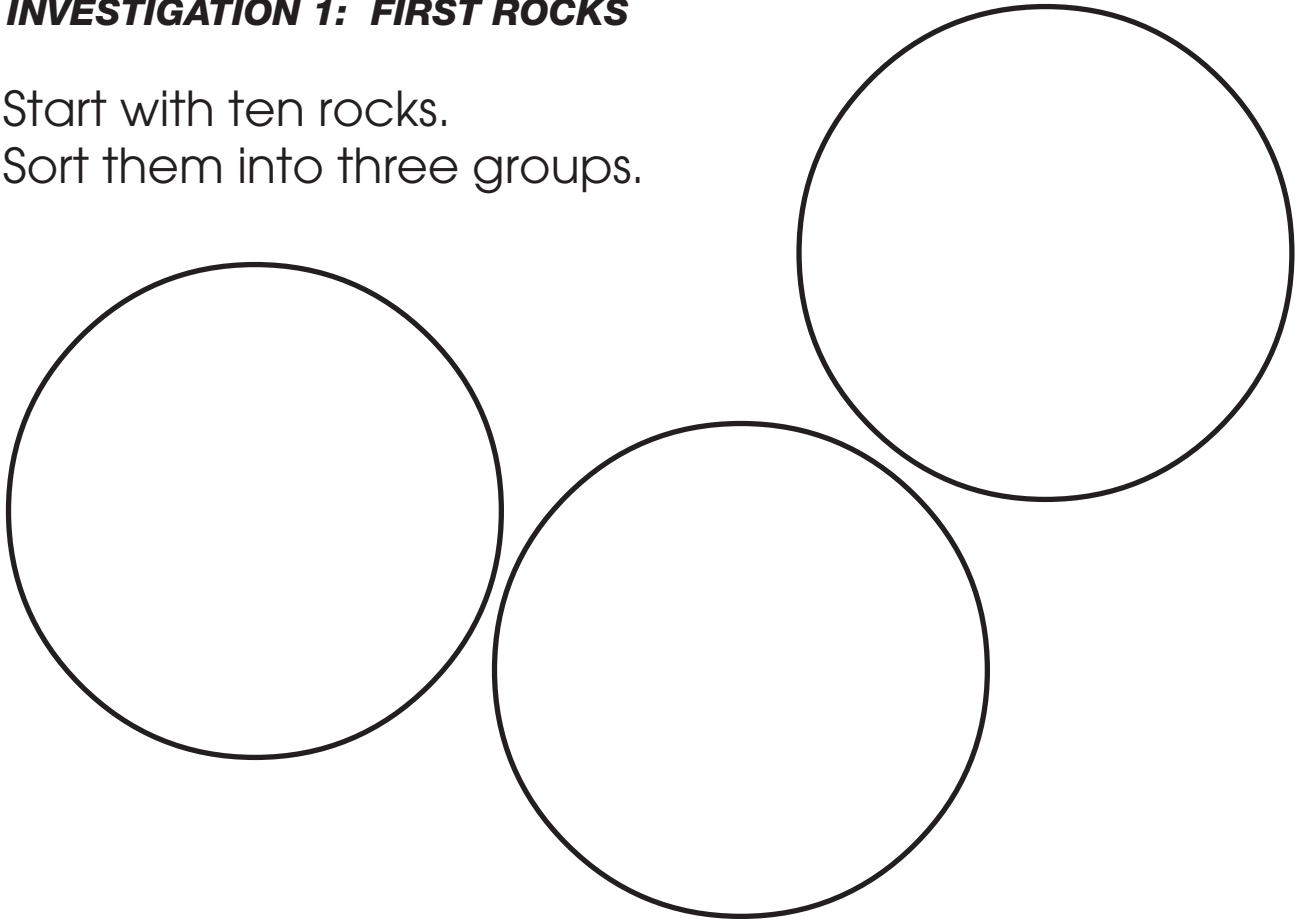
_____.

Name _____ Date _____

MATH EXTENSION A

INVESTIGATION 1: FIRST ROCKS

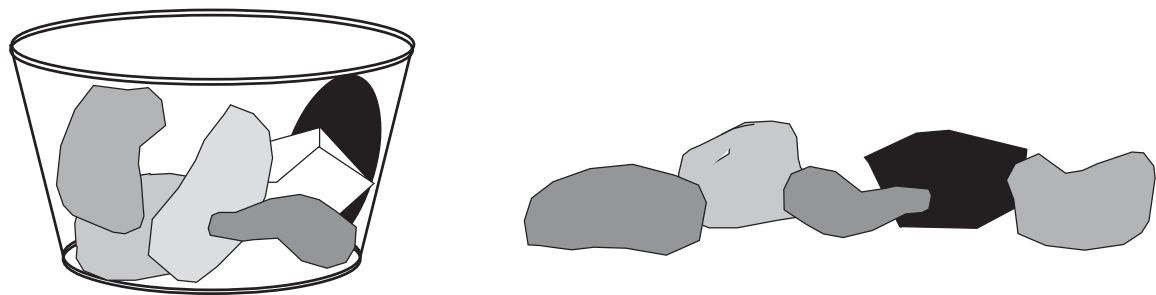
Start with ten rocks.
Sort them into three groups.



Write a number sentence about your rock groups.

MATH EXTENSION B
.....
INVESTIGATION 1: FIRST ROCKS

Simon collected these rocks.



Write a story problem to go with Simon's rocks.

Name _____ Date _____

MATH EXTENSION A

INVESTIGATION 2: RIVER ROCKS

After separating their river rocks with screens, each group in Mr. Lee's class counted their large and small pebbles. This is what they found.

	Large pebbles	Small pebbles
Group 1	5	4
Group 2	2	3
Group 3	6	3
Group 4	2	5
Group 5	5	2

Make a graph of the number of rocks of each size.

MATH EXTENSION B

INVESTIGATION 2: RIVER ROCKS

Your class started a rock store. Everything is made from rocks! Ian comes to buy some rocks. He has this much money in his pocket.



25¢



5¢



5¢



10¢



1¢



1¢

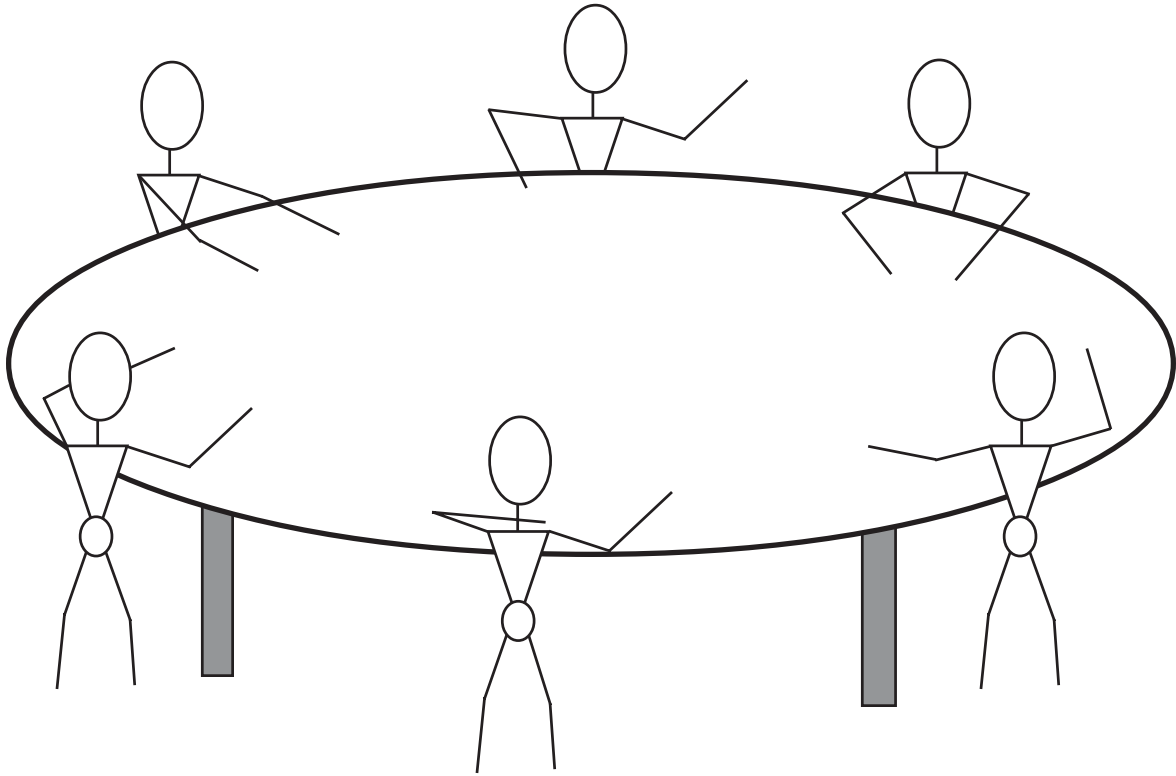
What can he buy?

<p>clay-bead necklace</p> <p>35¢</p> <p>YES NO</p>	<p>pet rock and crystal</p> <p>22¢ + 25¢</p> <p>YES NO</p>
<p>polished pebbles</p> <p>50¢</p> <p>YES NO</p>	<p>6 cobbles</p> <p>5¢ each</p> <p>YES NO</p>

Name _____ Date _____

MATH EXTENSION A

INVESTIGATION 3: USING ROCKS



You and your friends want to make clay bricks at home.

1. Each person needs 2 cups of clay. How many cups of clay will you need?
2. Each person needs 1 handful of straw. How much straw will you need?
3. Every two people share 1 cup of water. How many cups of water will you need?

MATH EXTENSION B

INVESTIGATION 3: USING ROCKS

Ginny and Harry are building a wall with bricks. Each row will have six bricks when they are done. The wall is four rows tall.

1. How many bricks will they need to finish each row?

<

Name _____ Date _____

MATH EXTENSION

INVESTIGATION 4: SOIL EXPLORATIONS

Jay, Peter, Carol, Sally, and Mark are all in second grade. Their class went on a rock hunt.

1. If each of the boys found five rocks, how many rocks did the boys bring back to class?
2. If each girl found four rocks, how many rocks did the girls bring back?
3. If all of these students put their rocks in one big pile, how many rocks would there be?
4. If one boy then decided to take his rocks back out of the pile, how many would be left?

Name _____ Date _____

HOME/SCHOOL CONNECTION

INVESTIGATION 1: FIRST ROCKS

Invent a game that uses different kinds of rocks. It should use the properties of the rocks you have.

Here are some examples. The goal of the game could be to put together similar-looking rocks, like rummy. Or the goal could be finding one rock among many. Or the goal could be to find ways that rocks are the same, like the game of dominos or Crazy Eights. It could also be a brand new game that you invent.

Have a family member help you write the directions for the game so you can share it in class.

Name _____ Date _____

HOME/SCHOOL CONNECTION

INVESTIGATION 2: RIVER ROCKS

Play the I Spy game. Gather 5–10 objects that share a property and place them on a table. A set might be composed of pencils, pens, flatware, straws, and chopsticks because they are all long and narrow. A set of books and catalogs might constitute a second set, a collection of stuffed toys a third, and so on.

Two players play the game. First the two players organize the objects from smallest to largest. Then one player secretly chooses one object and compares it to the others: "I spy something that is bigger than _____ and smaller than _____." The second player guesses which object was chosen by player one. If the guess is incorrect, player one provides a second "I spy" hint.

Swap roles and play again. Choose new sets of objects.

Name _____ Date _____

HOME/SCHOOL CONNECTION

INVESTIGATION 3: USING ROCKS

Rocks are used as building materials everywhere you look. We explored our school site for rocks in use.

Where are rocks used in your neighborhood?

Go on a scientific field trip around your home. Let your child act as leader, pointing out where rocks can be found. Look for big rocks in walls and gardens, and tiny rocks, in the form of sand and gravel, in pavement, concrete, bricks, and lots of other places. List the rocks in use for your child to share with the rest of the class.

Name _____ Date _____

HOME/SCHOOL CONNECTION

..... **INVESTIGATION 4: SOIL EXPLORATIONS**

Our study of rock sizes led us to a study of soil. We now know that soil is mostly rock particles and some humus.

One important property of soil is its water content. Soil scientists often do tests to see how quickly water soaks into and passes through the soil. This is called porosity. Test and compare the porosity of soil in two or more places around your home.

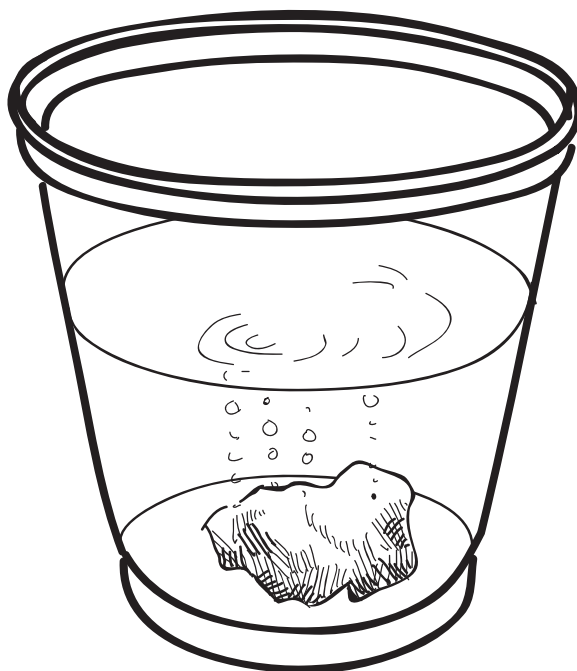
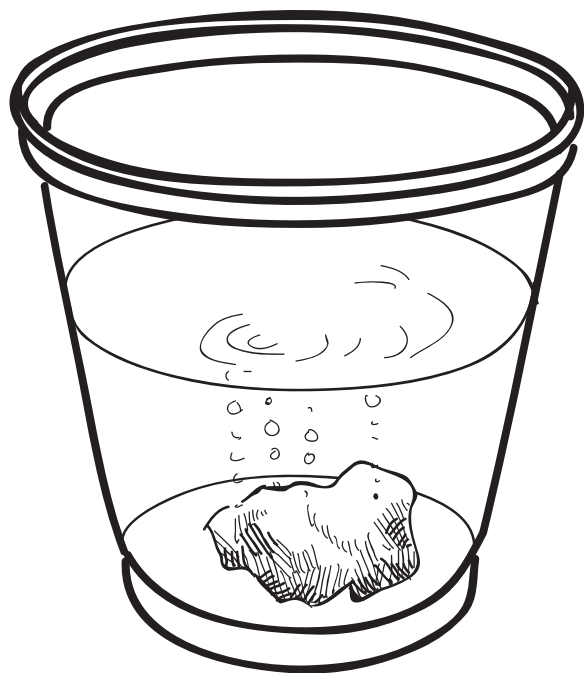
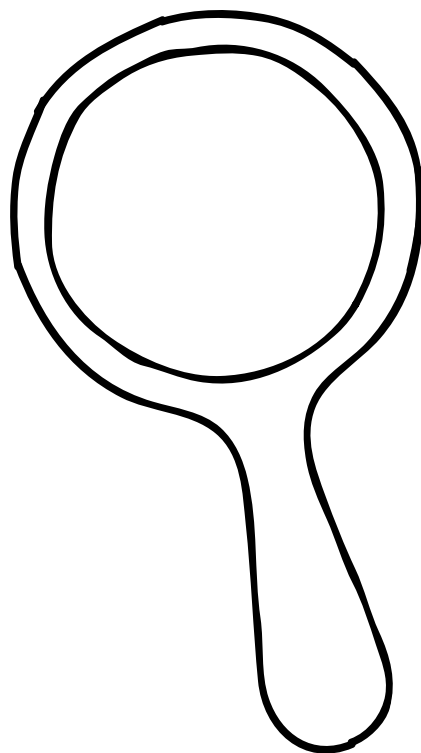
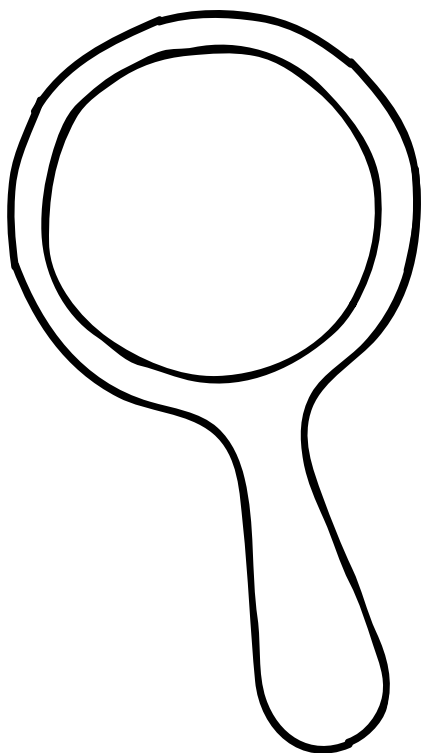
Use a trowel or metal spoon to dig a shallow hole in the soil, maybe the size of a soda can, but not very deep. Pour in about a cup of water and time how long the water takes to completely soak into the soil. Compare flower beds, gardens, edges of lawns, paths, sandboxes, and so on. Keep track of the time needed to soak into different soils and collect a little sample of the soil.

Remember, in order to compare, the holes should be the same size, and the amount of water should always be the same.

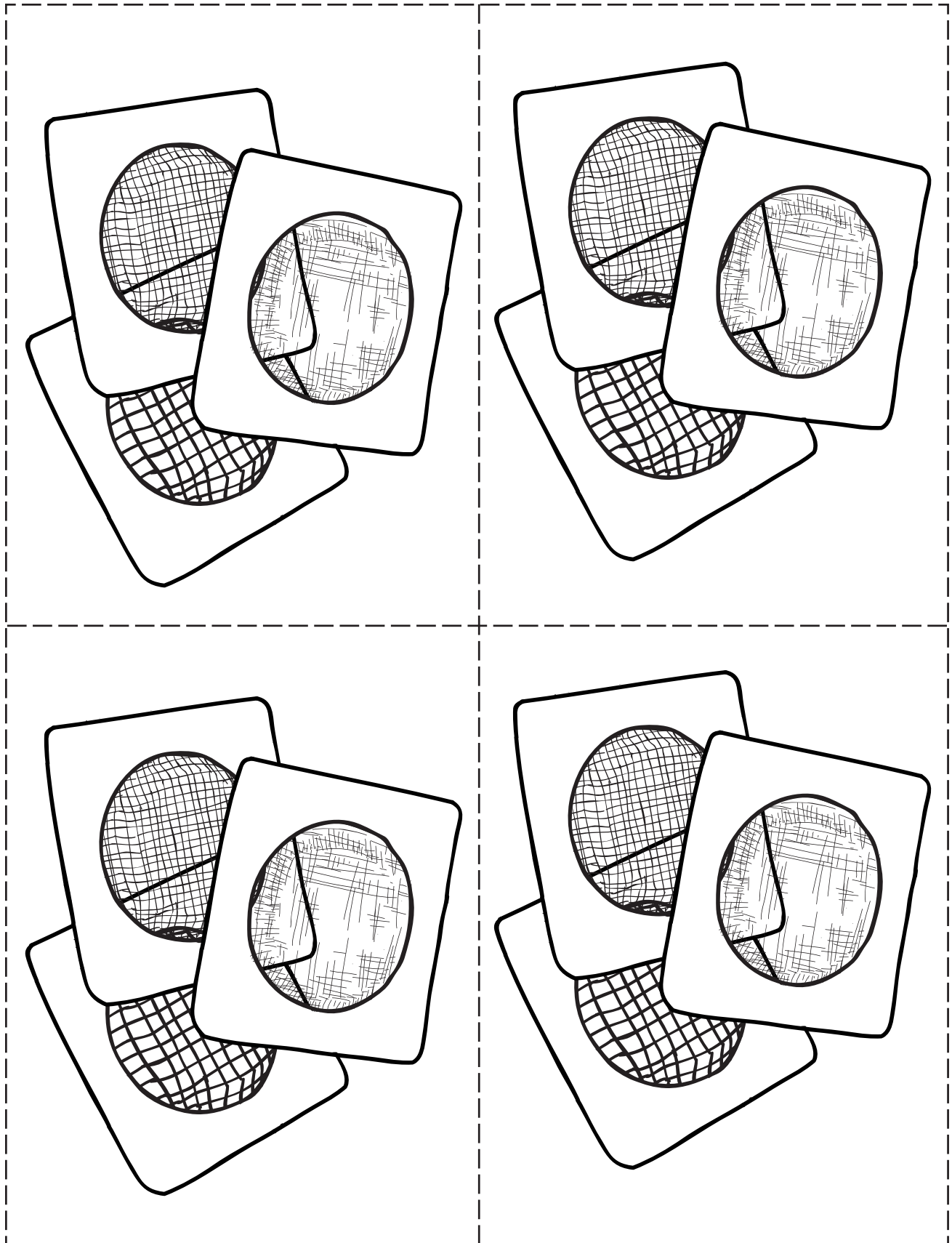
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MAGNIFIER AND ROCK IN WATER

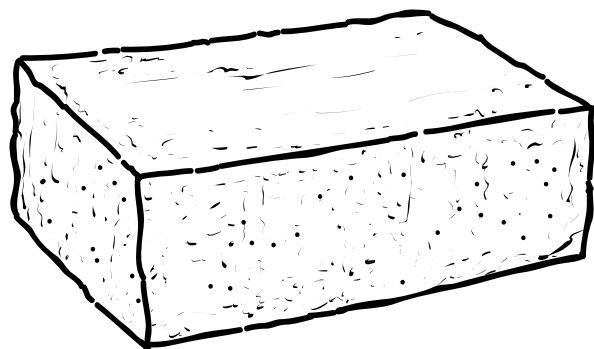
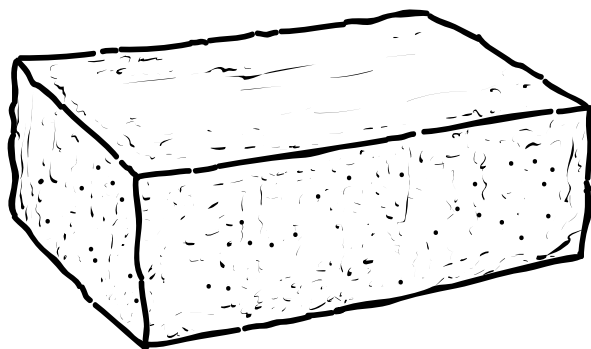
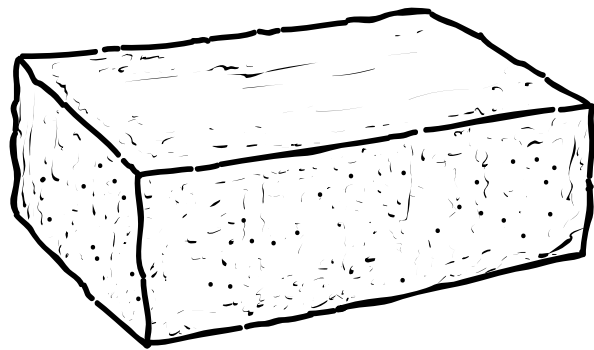
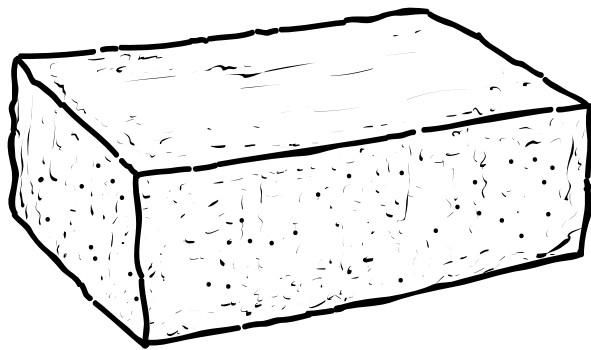


SCREENS



BRICK

.....



FLOWERPOT

